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EXAMINER

LAUCHMAN, LAYLA G

ART UNIT PAPER NUMBER

2877

DATE MAILED: 06/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,778

Applicant(s)

HOFF ET AL.

Examiner

L. G. Lauchman

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25, 27, 29-40 and 42-68 is/are rejected.
- 7) ☐ Claim(s) 26, 28 and 41 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 9-15, 16-19, 29-40, 42-50, 54-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoch et al (US 6,002,520).

As to Claims 1-3, the patent '520 teaches an illumination system (see FIG. 1), comprising: a light source 105, a diffractive diffuser 111 to regulate the light into the regulated light (uniform light), and the imaging optics 109. The patent does not teach a first and a second lenses positioned in front of the diffuser and behind the diffuser, respectively. However, the patent teaches that if the imaging optics include more than one element, the diffractive diffuser may be located among the elements of the imaging optics (see col.3, lines 3-14). The imaging optics could be the convex lenses or a concave mirror. Therefore, it would have been obvious to one skilled in the art to position a diffuser between the two lenses since the idea of placing the diffuser "among the elements of the imaging optics" is clearly presented in the patent '520. The light 105 is a light emitting diode.

As to Claims 9-15, Hoch teaches everything as applied to Claim 1, except for identifying types of the first and second lens. Using a first lens for collimating light and a second lens for focusing light is the system of light source-first lens-diffuser-second

lens-object is well known in the art of diffusing light. For example, see the US patent 5,710,631, Fig. 1 (col. 6, lines 57-65).

As to Claims 16-19, Hoch teaches everything as applied to Claim 1, except for identifying the type diffractive diffuser, whether is a hologram, or an element chosen from an optically etched diffractive optical element. However, all these types of diffractive diffusers are well known in the art and would be obvious to use since they provide uniform or regulated light and compensate light intensity distributions and shapes.

As to Claims 29-40, the regulated light in the apparatus of Hoch has an intensity distribution suitable for uniform illumination of the target. As to the various percentage of the intensity variation, the discovering an optimum value of a result effective variable involves only routine skill in the art.

As to Claims 42-50, the selection of target is merely a matter of determining in which manner the claimed apparatus is intended to be employed. Therefore, since the claimed structural limitations of the apparatus do not differentiate from the Hoch's apparatus, it would have been obvious to select a target for the apparatus of Hoch on the basis of the intended use.

As to Claims 54-62, the patent '520 teaches an illumination system (see FIG. 1), comprising: a light source 105, a diffractive diffuser 111 to regulate the light into the regulated light (uniform light), and the imaging optics 109. The patent does not teach a first and a second lenses positioned in front of the diffuser and behind the diffuser, respectively. However, the patent teaches that if the imaging optics include more than

Art Unit: 2877

one element, the diffractive diffuser may be located among the elements of the imaging optics (see col.3, lines 3-14). The imaging optics could be the convex lenses or a concave mirror. Therefore, it would have been obvious to one skilled in the art to position a diffuser between the two lenses since the idea of placing the diffuser "among the elements of the imaging optics" is clearly presented in the patent '520. In regards to the target choice, the selection of target is merely a matter of determining in which manner the claimed apparatus is intended to be employed. Therefore, since the claimed structural limitations of the apparatus do not differentiate from the Hoch's apparatus, it would have been obvious to select a target for the apparatus of Hoch on the basis of the intended use.

As to Claims 63-68, the apparatus of claim 57 is capable of performing a method as claimed.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoch et al (US 6,002,520) as applied to Claim 1 above, in view of Petersen et al (US 5,534,386).

As to Claims 4-16, Hoch et al does not teach a light source being a laser, however, Petersen teaches a homogenizer, which destructures and shapes light using a coherent laser light source. It would have been obvious to one skilled in the art to use a coherent laser light source in the invention of Hoch, since the choice of a light source is within the general skill of a worker and the selection of the light source is based on its suitability for the intended use.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoch et al (US 6,002,520) as applied to Claim 1 above, in view of Krietzman (US 6,431,731). Hoch does not teach a light source comprising a first light source and a second light source, however, Kreitzman uses two laser sources (one or more wavelengths) to produce diffuse illumination. It would have been obvious to one skilled in the art to use a first and a second lasers in the invention of Hoch in order to produce a coherent wide spectrum illumination.

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoch et al (US 6,002,520) as applied to Claim 1 above, in view of Shalapenok et al (US 6,081,381).

Hoch does not include an optical diffuser configured to remove speckle, however, the patent to Shalapenok is describing an optical diffuser 14 (FIG.1) as a part of an apparatus for elimination of speckle pattern. Therefore, it would have been obvious to one skilled in the art to add an optical diffuser in the system of Hoch in order to remove speckle. As to an optical diffuser being rotated, the diffuser 14 of the Shalapenok's invention is rotated to achieve the effect of the speckle elimination.

Claims 23, 24, 27, 51-53, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoch et al (US 6,002,520) as applied to Claim 1 above, in view of Leith et al (US 3,754,814).

Hoch does not teach the regulated light shaped to match a size and shape of the selected area. However, Leith describe an apparatus for sampling an image of an object illuminated by coherent light passed through the diffusing structure by focusing

light by the lens structure 17 (see Figs 1, 4, 4A, and 4B). It would have been obvious to one skilled in the art to shape regulated light in the invention of Hoch in order to provide a certain shape and size of the selected area.

Allowable Subject Matter

Claims 26, 28, and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: As to Claims 26, 28, the prior art of record taken along or in combination, fails to disclose or render obvious the regulated light having a gradient intensity profile for substantially uniform illumination of the selected area at a non-normal angle of incidence, in combination with the rest of the limitations of Claim 1. As to Claim 41, the prior art of record taken along or in combination, fails to disclose or render obvious controlling a numerical aperture of the regulated light in order to produce a selected depth of field and a selected edge sharpness, in combination with the rest of the limitations of the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Art Unit: 2877

Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to TC 2877 via the PTO Fax Center located in CP4-4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Center number is (703)308-7722 or 308-7724.

If the Applicant wishes to send a Fax dealing with either a Proposed Amendment or for discussion for a phone interview then the fax should:

a) Contain either the statement "DRAFT" or "PROPOSED AMENDMENT" on the Fax Cover Sheet; and


b) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to L. G. Lauchman whose telephone number is (703) 305-0071.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC receptionist whose telephone number is (703) 308-0956.

L. G. Lauchman
Patent Examiner
Art Unit 2877
6/13/03/lgl



Frank G. Font
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